Mr. Alfred Waterhouse, R.A., for the realisation of the plan and requirements of our Museum of Natural History, has chosen an adaptation of the Round-arched Gothic, Romanesque, or Romaic of the twelfth century. No style could better lend itself to the introduction, for legitimate ornamentation, of the endless beautiful varieties of form and surface sculpture exemplified in the animal and vegetable kingdoms. But the skill in which these varieties have been selected and combined to produce unity of rich effects will ever proclaim Mr. Waterhouse's supreme mastery of his art.

I need only ask the visitor to pause at the grand entrance, before he passes into the impressive and rather gloomy vestibule which leads to the great hall, and prepares him for the flood of light displaying the richly-ornamented columns, arcades, and galleries of the Index Museum.

In the construction of a building for the reception and preservation of perishable objects, the material should be of a nature that will least lend itself to the absorption and retention of moisture. This material is that artificial stone called terra-cotta. The compactness of texture which fulfils the purpose in relation to dryness is also especially favourable for a public edifice in a metropolitan locality. The microscopic receptacles of soot-particles on the polished surface of the terra-cotta slabs are reduced to a minimum; the influence of every shower in displacing those particles is maximised. I am sanguine in the expectation that the test of exposure to the London atmosphere during a period equal to that which has elapsed since the completion of Barry's richly ornamented palace at Westminster, now so sadly blackened by soot, will speak loudly in favour of Mr. Waterhouse's adoption of the material for the construction of the National Museum of Natural History. A collateral advantage is the facility to which the moulded blocks of terra-cotta lend themselves to the kind of ornamentation to which I have already referred.

In concluding the above sketch of the development of our actual Museum of Natural History, I may finally refer, in the terms of our modern phylogenists, to the traceable evidences of "ancestral structures." In the architectural details of the new Natural History Museum you will find but one character of the primitive and now extinct museum retained, viz. the Central Hall. In Montague House there were no galleries, but side-lit saloons or rooms of varying dimensions and on different storeys.

In its successor, the Museum developed on its site at a later period, we find galleries added: that, for example, which was appropriated to the birds and shells being 300 feet in length. This architectural organisation still exists at Bloomsbury.

The Museum, which may be said to have budded off, has risen to a still higher grade of structure after settling down at South Kensington. In its anatomy we find, it is true, the central hall and long side-lit galleries; but in addition to these inherited structures we discern a series of one-storeyed galleries, manifesting a developmental advance in the better admission of light and a consequent adaptation of the walls as well as the floor to the needs of exhibition.[1]

Should the Section, as did the Académie des Sciences in relation to the passage cited, kindly condone such application to human contrivances of the current genealogical or phylogenetic language applied to vital structures, your President need hardly own his appreciation of the vast superiority of every step in advance which is manifested in existing as compared with extinct organisms. And thus, sensible as far as human faculty may comprehend them, that organic adaptations transcend the best of those conceived by the ingenuity of man to fulfil his special needs, he would ask whether analogy does not legitimately lead to the inference, for organic phenomena, of an Adapting Cause operating in a corresponding transcendent degree?

In conclusion, I am moved to remark that a Museum giving space and light for adequate display of the national treasures of Natural History may be expected to exert such influence on the progress of Biology as to condone, if not call for, a narrative of the circumstances attending its formation in the Records of the British Association for the Advancement of Science.

OUR ASTRONOMICAL COLUMN

ENCKE'S COMET.—We continue the ephemeris of this comet in the contracted form adopted in NATURE, vol. xxiv. p. 292, from the calculations of Dr. O. Backlund of Pulkowa:—

At Berlin midnight

	R.A.			Decl.		Log. distance from	
	h.	m.	s.	°	′	Sun.	Earth.
Sept. 2	4	23	4	+35	53·2	0·1659	0·0222
4	4	31	17	36	35·9		
6	4	40	7	37	19·2	0·1493	9·9885
8	4	49	38	38	3·0		
10	4	59	56	38	46·8	0·1317	9·9535
12	5	11	6	39	30·3		
14	5	23	16	40	12·8	0·1128	9·9173
16	5	36	32	40	53·3		
18	5	51	1	41	30·9	0·0926	9·8805
20	6	6	51	42	4·1		
22	6	24	7	42	30·9	0·0709	9·8439
24	6	42	54	42	49·3		
26	7	3	13	42	56·3	0·0474	9·8089
28	7	25	0	42	49·3		
30	7	48	5	42	24·9	0·0219	9·7776
Oct. 2	8	12	13	+41	40·4		

In 1848, when the perihelion passage occurred eleven days later than it will do in the present year, the comet was remarked to be "just visible" to the naked eye at Harvard Observatory, U.S., on the morning of October 9, when the theoretical intensity of light was 4·3, and it was "plainly visible" to the naked eye on the morning of November 4, with an intensity of 9·5. The latter is a greater value than will be attained at this appearance, the maximum being 7·5 on November 9. On October 10 the calculated brightness will be equal to that, when it was just visible without the telescope in 1848, but moonlight will interfere at the time. For about four weeks after September 10 the comet will not set in London. As we have already stated it will be nearest to the earth on October 11, and in perihelion on November 15.

[Since the above was in type we learn from Mr. A. A. Common that he detected Encke's comet with his three-feet reflector at Ealing, shortly before midnight on Saturday last. On the following night, when it was better seen, its diameter was about 2′, and there was a central condensation of light.]

SCHAEBERLE'S COMET.—This comet will soon be well observable in the other hemisphère. The following track depends upon elements which Dr. v. Hepperger has calculated from observations to August 11:—

At Berlin Midnight.

	R.A.		Decl.		Log. distance from Earth.	Intensity of light.
	h.	m.	°	′		
Sept. 1	13	30·0	+11	27	9·8329	12·5
5	13	52·7	+ 1	41	9·8965	8·5
9	14	7·7	− 5	32	9·9606	5·7
13	14	18·1	10	52	0·0198	3·8
17	14	25·7	14	56	0·0725	2·6
21	14	31·4	18	8	0·1191	1·9
25	14	36·1	20	42	0·1601	1·4
29	14	40·0	22	51	0·1962	1·0
Oct. 3	14	43·5	24	41	0·2284	0·8
7	14	46·6	−26	16	0·2569	0·6

The intensity of light on July 18, the date of the first European observation, is taken as unity.

NOTES

THE Royal Gardens, Kew, have just received, through the kind exertions on their behalf of Sir Ferdinand von Mueller, K.C.M.G., F.R.S., Government Botanist, Melbourne, perhaps the most remarkable Australian Cycadaceous stem which has ever been imported into this country. It is about four feet high, five and a half feet in circumference, and weighs about six hundredweight. It is the type of a new species described by von

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[1] In the notable reply (*Annales des Sciences Naturelles*, 1829) to an illustration of the unity of composition or of plan in Cephalopods and Vertebrates, by bending one of the latter so as to bring the pelvis in contact with the nape, advocated by Geoffroy St. Hilaire, Cuvier did not deem it too trivial to call in architecture to elucidate his objections. "La *composition d'une maison*, c'est le nombre d'appartemens ou de chambres qui s'y trouve; et son *plan*, c'est la disposition réciproque de ces appartemens et de ces chambres. Si deux maisons contenaient chacune un vestibule, une antichambre, une chambre à coucher, un salon, et une salle à manger, on dirait que leur *composition est la même*; et si cette chambre, ce salon, &c., étaient au même étage arrangés dans le même manière, on dirait aussi que leur *plan est le même*. Mais si leur ordre était différent, si de plain-pied dans une des maisons, ces pièces étaient placées dans l'autre aux étages successifs, on dirait qu'avec une composition semblable ces maisons sont construites sur des plans différens" (p. 245).

Mueller as *Macrozamia Moorei*, in honour of Mr. Charles Moore, F.L.S., the Director of the Botanic Garden, Sydney. The exhibition of two stems (of which that secured for and sent to Kew is one) in the Queensland Court at the Melbourne Exhibition, seems to have drawn attention to the species. The plants appear to have been obtained from the mountainous district near Springsure in Queensland, where specimens have been seen twenty feet in height, with a girth of six feet four inches, cones measuring two to three feet in length, and leaves seven feet long. The stem at Kew has been placed in the Palm House, where it can scarcely fail to be an object of interest. It is in excellent condition, and there is every reason to hope that it will in time push a new crown of leaves. But even if it does not it will at any rate form, as Sir Ferdinand von Mueller has suggested, a unique museum specimen.

The *Gazette* contains the official notice of the appointment of a Royal Commission, consisting of Mr. Bernhard Samuelson, M.P., F.R.S., Prof. H. E. Roscoe, D.C.L., F.R.S., Mr. Philip Magnus, Mr. John Slagg, M.P., Mr. Swire Smith, and Mr. William Woodall, M.P., "to inquire into the instruction of the industrial classes of certain foreign countries in technical and other subjects, for the purpose of comparison with that of the corresponding classes in this country; and into the influence of such instruction on manufacturing and other industries at home and abroad."

The Queen has signified her pleasure to confer upon Mr. MacCormac, of St. Thomas's Hospital, Honorary Secretary-General of the late International Medical Congress, the honour of knighthood.

The Meteorological Station to be erected at Pavia will be under the direction of Prof. Cantoni, who will establish a station for terrestrial physics, for the investigation of the influence of heat, light, electricity, &c., on vegetation in general, and some cultivations in particular, and also for the observation of the diurnal and annual variations of terrestrial magnetism.

The scientific activity of Paris is at present almost exclusively concentrated on electricity, and the Paris Electrical Exhibition will have a scientific significance which is quite unusual. The initiative has been taken by the German Government, which has sent several professors to deliver lectures on the objects exhibited by that nation. Dr. Christian, of the Physiological Museum of Berlin University, gives explanations every day at two o'clock of the galvanometers on the Siemens system constructed by him. On Monday M. du Moncel, Member of the Institute, delivered a lecture on Telegraphy at ten o'clock in the morning, and conducted his audience through the galleries to visit the instruments described by him. Other lectures have been advertised for the different days of the week from August 29 to September 3. The Exhibition was opened to the Press last Friday and to the public last Saturday, at night from eight to eleven.

The electric tramway in Paris has at length begun to work, and has several times gone backwards and forwards. A single overhead tube was tried at first to convey the current, but it was found impossible to insulate the rail by which it returned. Two overhead copper tubes are now used, along each of which at the bottom runs a longitudinal slit. A wire passing through the slit is attached to the tramcar beneath, and above to a small wheel which runs freely in the copper tube. As the car advances it draws along the little wheels through each tube, and thus maintains the connection.

A number of natives of Tierra del Fuego are at present at the Jardin d'Acclimatation in Paris.

The French Government have resolved to grant a subvention for erecting a statue in Franche Comte to Claude de Jouffroy as the inventor of steam vessels. The French Académie des Sciences at its last sitting adopted a report of M. de Lesseps in favour of Jouffroy's claim to that distinction and to public gratitude.

The new botanical lecture theatre of the University of Edinburgh was used by Prof. Dickson for the first time during the past summer session. It is built from the plans of Mr. Robertson, of H.M. Board of Works, and is a large octagonal building lighted from the roof and by windows on six sides. It is seated for 600, and had this year to contain 450 students. The acoustic arrangements are perfect. The old lecture-room has been converted into a general laboratory, while the former laboratory becomes a private room. The practical teaching has been conducted as formerly by Mr. Geddes, lecturer on Zoology in the School of Medicine, assisted by Mr. J. M. Macfarlane, B.Sc. Besides the usual elementary class, a class for advanced workers has also been started, a considerable number of investigations have been prosecuted, and instruction in drawing has been provided. The latter arrangement has been peculiarly successful.

The twelfth meeting of German Anthropologists was opened at Ratisbon on August 8 by the president, Prof. Fraas. Some 250 members were present. The secretary, Prof. Ranke, read the report on the widely-extended activity of the Society. Prof. Ohlenschläger (Munich) spoke on the Roman epoch in Bavaria and the excavations in the Roman burial-ground near Ratisbon. Other addresses were delivered by Professors von Virchow, Tischler, Undset, Groos, Mehlis, Klopfleich, Schaaffhausen, Vater and Török. The next meeting-place will be Frankfort.

The second meeting of Austrian Anthropologists took place at Salzburg on August 12-16. Some 270 gentlemen were present, principally Germans, Norwegians, and Russians. Of eminent scientific men we may mention Prof. von Virchow, the travellers Dr. Holub and Dr. Nachtigal, Prof. Steub (Munich), and Prof. Johannes Ranke. Count Wurmbrand was elected president, and Baron von der Sacken vice-president. Addresses were delivered by Herren Prinzinger, Much, and Zillner on the ancient inhabitants of Noricum, which the former two said were Germans; Herr Zillner however believed them to have been Kelts. On the second day Crown-Prince Rudolf took part in the meeting. Count Wurmbrand spoke on the development of the forms of bronzes and clay vessels, Herr Wolderich on prehistoric dogs, Holub on the South African negro tribes. Herr Maska reported on the discoveries near Schamberg, and Professors von Virchow and Schaaffhausen had an animated debate on the jaw of Neutitschein. Other addresses were delivered by Professors Tischler, Luschan, von der Sacken, Müllner, and Schaaffhausen. The usual excursions terminated the meeting.

The death is announced of Prof. L. Spangenberg, director of the technical Versuchsanstalt and Professor of the Engineering Sciences at the Technical High School of Berlin. He died on August 6 last.

The celebrated Egyptologist, Brugsch Pacha, has changed his residence from Cairo to Berlin, where he will lecture at the University.

The European Vice-Consul at Tchesme telegraphs to Constantinople on August 27 that Tchesme and Chio were, on the night of the 26th, visited by an earthquake still more terrible than that of the 3rd of April. The destruction of property, he says, is considerable, and the inhabitants are in despair. Contemporaneously with the shocks of earthquake felt at Chio and Tchesme, the earth at Zante is reported to have suddenly given out intense heat, accompanied by a strong breeze from the east, causing much alarm. These phenomena, however, subsided immediately. On the 24th inst. the entire island was enveloped in smoke, clouds from the west-south-west obscuring the sea from noon until dusk. Masses of calcined leaves also fell throughout the island.

A SEVERE shock of earthquake is reported to have been experienced in the mining district of Teversal, in Nottinghamshire, about noon on Friday last. In one of the pits belonging to the Stanton Ironworks Company the miners were so alarmed at the shock and the accompanying noise, that, thinking an explosion had occurred, they rushed to the mouth of the pit. In the Pear Tree Inn, Fackley, bricks were removed from the chimney, and the same thing was noticed in a house at Teversal. The station-master at the latter village, while sitting in his house, was thrown from his seat by the shock, and a quantity of plaster was detached from the ceiling. There was no explosion in the mines or other circumstance to account for the phenomena, and an upheaval of the floor of one of the pits indicated that the cause of disturbance was below the workings. One of the pits is 430 yards deep. The shock travelled in a north-west direction.

THE programme of the Congress of German Antiquarians, which will meet at Frankfort on September 11-15, has now been published. On the 11th the twenty-five years jubilee of the Frankfort Antiquarian Society will be celebrated.

THE professorship of Natural History and Geology at the Royal Agricultural College, Cirencester, vacant by the resignation of Prof. M. G. Stuart, has been filled by the appointment of Mr. Allen Harker, late of the Zoological Station, Naples.

ONE of the exhibits at the International Medical and Sanitary Exhibition was a "Compact School Collection for Use in Teaching the Chemistry of Foods," suggested by W. Stephen Mitchell, M.A. This form of case has been arranged for the purpose of affording, at a low cost, help to teachers in giving demonstrations on the chemistry of foods. The leading idea is that the teachers will be able to have on the walls of their schoolrooms the actual objects they are talking about, and the children will be familiarised by having always before them, not simply words or diagrams, but samples of the things themselves. Mr. Mitchell believes, as he stated in a paper read before the Society of Arts and the Domestic Economy Congress held at Birmingham, that with such diagrams as he showed, having lines of different lengths to represent quantities, greater accuracy of the knowledge of quantities can be conveyed than by showing the measured quantities in heaps as is the plan adopted at Bethnal Green. This does not get over the difficulty of showing the gases. Teachers must learn how to prepare these to show to their classes. The apparatus and materials for doing this are not costly, and are described in the "Shilling Chemistry Primer" published by Macmillan and Co. The cases are arranged with a sliding panel in front, so that the bottles can be taken out.

AT Castrop (Westphalia) a meteor was observed in the north-east sky on July 30 at 8.15 p.m. It moved in the direction from north-west to south-south-east. A meteoric stone weighing about 5 lbs. fell in the immediate vicinity of a field labourer, and penetrated into the ground to the depth of 1 metre. It was intensely hot, and was afterwards forwarded to Herr Oberbergrath Runge at Dortmund, in whose possession it now is.

ON August 15 the well-known Professor of Physics, Dr. Wilhelm Weber of Göttingen University, celebrated the day when, fifty years ago, he was called to that University from Halle. He is now seventy-seven years of age, and lectured until a few years ago.

A TERRIBLE catastrophe happened on August 16 at Remscheid (Rhenish Prussia). Suddenly the so-called Brennende Berg opened to the extent of some sixty to one hundred square metres and threw up gigantic flames. A house standing near sank into the burning gulf, and its inmates unfortunately perished. It is believed that the disaster was caused by the ignition of petroleum gas rising from a petroleum vein in the depth of the mountain.

Apropos of the forthcoming erection of a monument to Sauvage at Boulogne-sur-Mer, it may be mentioned that a rival claim to the invention of the screw propeller has been set up on behalf of a person named Dallery, also a Frenchman, whose granddaughter, it is alleged, has submitted certain evidence to the Académie des Sciences, showing that her grandfather, who died in 1835, took out a patent as long ago as 1813 for certain contrivances, including a screw propeller and a tubular boiler. M. de Lesseps is of opinion that although Dallery, like Pauchon, had long ago conceived the idea of the screw, yet it is to Sauvage that the credit is due of having been the first to apply it to practical purposes.

THE following candidates have been successful in obtaining Royal Exhibitions of 50*l*. per annum each for three years, and free admission to the course of instruction at the following institutions:—1. The Normal School of Science and Royal School of Mines, South Kensington and Jermyn Street, London—Thomas Mather, aged twenty-four, pattern maker, Manchester; Alfred Sutton, twenty-one, engine-fitter, Brighton; William H. Littleton, seventeen, student, Bristol. 2. The Royal College of Science, Dublin—Arthur Whitwell, nineteen, ex-pupil teacher, Nottingham; Frederick J. Willis, eighteen, student Bristol; Christopher J. Whittaker, twenty-one, pattern maker, Accrington.

MR. E. B. TYLOR requests us to mention that the portrait of Andaman Islanders in his "Anthropology," p. 88, which was reproduced in Mr. Wallace's review in NATURE, vol. xxiv. p. 242, is from one of the admirable series of photographs taken in 1872 by Dr. G. E. Dobson, now of the Army Medical School, Netley Hospital. By inadvertence, the cut in question was printed in the "Anthropology" without reference to Dr. Dobson. His paper "On the Andamans and Andamanese" in vol. iv. of the *Journal* of the Anthropological Institute, which gives an account of his visit to the natives in their forest-home, is illustrated with a set of three portrait-groups, which show perfectly their peculiar and homogeneous race-type.

MESSRS. CASSELL AND CO. have issued the first part of "an entirely new and revised edition" of Dr. Robert Brown's "Races of Mankind," under the title of "The Peoples of the World."

PHYLLOXERA has made its appearance in Hungarian vineyards. Its occurrence in the district of Szölös Urdo (Torda Comitat) has been officially stated. Also in the Swiss canton of Neufchâtel it is spreading to an alarming extent. The vineyards of Grand-Saconnex, Colombier, and La Coudre are fast succumbing to the plague.

M. SYNYROS, an Athens merchant, has recently given 100,000 francs for building a museum at Olympia.

THE construction of another great Alpine tunnel which should bring Paris and the North of France into more direct communication with Italy than is afforded by the existing tunnel through Mont Cenis, is under consideration with the French Government, the projects including not only one through Mont Blanc, but also through the Simplon or the Great St. Bernard. It is not likely, however, that the latter will meet with much encouragement. The tunnel under the Simplon would be 60,719 feet long, while that under Mont Blanc is only 44,292 feet. As connected with other Alpine tunnels, Mont Cenis is 40,093 feet, and St. Gothard, 48,952 feet. The Simplon would therefore be longest of all; but, on the other hand, it would be on a lower level than the others, the entrance at Brieg being only 2333 feet, and that at Iselle 2253 feet above the sea level. The entrances to the Mont Blanc tunnel would be 3345 feet at Mont Quart, and 4215 feet at Entrèves above the sea level. The Bardonneche entrance to Mont Cenis is 3970 feet, and that at Modane 3799 feet, while in the case of the St. Gothard tunnel the northern entrance at Göschenen is 3638 feet, and the southern, at Airolo, 3756 feet above the sea. Thus the Mont Cenis tunnel is shorter, but 330 feet higher than the Mont Blanc, while the Simplon would be about half as long again, but about 1000 feet lower. Supposing that the operations would be conducted at the same rate as they have been at St. Gothard, the boring will take 4218 days, or, working at both ends, 2109—nearly six years.

THE additions to the Zoological Society's Gardens during the past week include two Guinea Baboons (*Cynocephalus sphinx*), a Grivet Monkey (*Cercopithecus griseo-viridis*, var.) from West Africa, presented by Mr. Lionel Hart; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by the Rev. George Cuffe; two Arabian Gazelles (*Gazella arabica*), three Domestic Pigeons (*Columba œnas*) from Arabia, presented by Mr. Reginald Zohrab; two Common Squirrels (*Sciurus vulgaris*), British, presented by Lieut.-Col. F. D. Waters, 82nd Regiment; a Collared Peccary (*Dicotyles tajaçu*) from Guiana, presented by Capt. W. F. Wardroper; a Ring-tailed Coati (*Nasua rufa*) from South America, presented by Mr. L. H. Haworth; a Cinereous Sea Eagle (*Haliaëtus albicilla*) from Norway, presented by Mr. James Ashbury; a Red and Blue Macaw (*Ara macao*) from South America, presented by Mrs. Supple; two Common Barn Owls (*Strix flammea*), British, presented by Mr. C. T. Foster; an Upland Goose (*Bernicla magellanica*) from South America, presented by Mr. A. Nesbitt; two Common Kestrels (*Tinnunculus alaudarius*), British, presented by Mr. J. Edwards: a Bonnet Monkey (*Macacus radiatus*) from India, a Common Marmoset (*Hapale jacchus*), from South-East Brazil, deposited; two European Scops Owls (*Scops giu*), European, purchased. Amongst the additions to the Insectarium during the same period are larvæ of the Common Butterfly (*Vanessa C. album*), Lobster Moth (*Stauropus fagi*), Pale Tussock Moth (*Orgyia pudibunda*)—the so-called Hop-Dog—*Dipthera orion*, *Halias prasinana*, and *Deilephila euphorbiœ* and *galii*; also a perfect insect of *Cholus forbesi*, being the third known example of this species, originally described from specimens captured in an orchid-house at Highgate. The present specimen was found, under similar conditions, by Dr. Wallace of Colchester.

SOCIETIES AND ACADEMIES

PARIS

Academy of Sciences, August 22.—M. Jamin in the chair.—The following papers were read:—Meridian observations of small planets and of Comet *b* 1881, at Paris Observatory, during the second quarter of 1881, by M. Mouchez.—Remarks on M. Jamin's note on comets, by M. Faye.—On spectrum analysis applied to comets, by the same.—On the nature of the repulsive force exercised by the sun, by the same. He associated it long ago with the state of incandescence of the sun; and, in an experiment, rare gaseous matter made luminous by means of an induction-spark was repelled by an incandescent plate at a sensible distance. Some thought this not decisive, however; for the gaseous matter might become more conductive through heating, so that the effect observed might be a sort of obscure discharge. M. Faye invites physicists to take up the matter afresh.—On the interior state of the terrestrial globe, by M. Roche. Supposing the globe formed of a nucleus or solid block nearly homogeneous, covered with a lighter layer, of density geologically shown to be about 3 in relation to water; he finds it possible to harmonise the general values of precession and flattening, if it be considered that the interior nucleus has solidified and taken its definitive form under influence of a rotation less rapid than that now animating the earth. The central block is probably like meteoric iron in specific gravity, while the enveloping layer is comparable to aërolіths of stony nature, with little iron.—On the irreducible co-variants of the binary quartic of the eighth order, by Prof. Sylvester.—On a new species of Cissus (*Cissus Rocheana*, Planch), from the interior of Sierra Leone, capable of bearing the winter of Marseilles, by M. Planchon. Its endurance is a matter of temperament, and a proof of the extent of the scale of resistance to cold and heat which some plants possess, and which often upsets all prevision. The American *Vitis riparia* lives sixty miles north of Quebec, and is also found in the sub-tropical Southern States.—On the laws of formation of cometary tails, by M. Schwedoff. Starting with the existence of an infinite number of ponderable particles in celestial space, he shows that those with parabolic orbits have most chance of collision and consequent heating and dispersion. The sudden vaporisation of solids, due to passage among them of a cometary nucleus, generates the cometary nebulosity. The velocity of propagation of visible waves accompanying the nucleus is equal to the velocity of the nucleus itself at the moment of departure of these waves. The maximum of intensity of a cosmic wave is found in the tangent to the orbit of the nucleus at the point of departure of the wave. With these two laws he seeks to explain the phenomena observed.—On a particular case of the theory of motion of an invariable solid in a resistant medium, by M. Willotte.—M. Trève communicated the results of some experiments as to the effects produced by shunts in telephonic circuits.—Solar observations at the Royal Observatory of the Roman College during the first quarter of 1881, by P. Tacchini. After the secondary minimum in the end of last year, the solar activity resumed its course towards the maximum. The distribution of protuberances, &c., was the same as in the last quarter of 1880.—Observations of solar spots and faculæ in April to July, 1881, by P. Tacchini. A minimum of spots occurred in May, and an exceptional maximum in July; now, the activity is anew at a minimum. During this year several periods of abundant frequency have recurred.—Spectroscopic studies on comets *b* and *c* 1881, by M. Thollon. Comet *c* seems to be almost wholly gaseous. The brightness of the head and tail of the comets seems to vary rapidly and uniformly with distance from the sun; arguing that their white light is almost wholly reflected sunlight. The slowness of variation of the band spectrum is against the view that the cometary elements are rendered incandescent by calorific action of the sun. The comets have probably a light and heat of their own.—Researches on the telluric lines of the solar spectrum, by M. Egoroff. Sending a strong electric beam through 18m. of aqueous vapour, and increasing the tension to 6 atm., the spectrum was notably changed in aspect. The group *a* in the extreme red he thinks fundamental for aqueous vapour, and he is going to examine it in detail.—On the existence of a new metallic element, actinium, in the zinc of commerce, by Mr. Phipson.—Note relative to a new series of phosphates and arseniates, by MM. Filhol and Senderens.—Fixation of hypochlorous acids on propargylic compounds, by M. Henry.—On the abnormal presence of uric acid in the salivary, gastric, nasal, pharyngeal, sudoral, and uterine secretions, and in menstrual blood; diagnostic and therapeutic indications, by M. Boucheron.—Observations during a thunderstorm on June 25, 1881, by M. Larroque.

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